



Modelling the Fire Performance of Structural Timber Floors

<https://research.thinkwood.com/en/permalink/catalogue212>

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Year of Publication: 2012

Country of Publication: Switzerland

Format: Conference Paper

Material: Timber-Concrete Composite

Application: Floors

Topic: Design and Systems
 Fire

Keywords: Failure Mechanisms
 Finite Element Model
 Fire Resistance
 Thermo-mechanical
 Full Scale

Language: English

Conference: International Conference on Structures in Fire

Research Status: Complete

Notes: June 6-8, 2012, Zurich, Switzerland

Summary:

This paper describes numerical modelling to predict the fire resistance of engineered timber floor systems. The floor systems under investigation are timber composite floors (various timber joist and box floor cross sections), and timber-concrete composite floors. The paper describes 3D numerical modelling of the floor systems using finite element software, carried out as a sequential thermo-mechanical analysis. Experimental testing of these floor assemblies is also being undertaken to calibrate and validate the models, with a number of full scale tests to determine the failure mechanisms for each floor type and assess fire damage to the respective system components. The final outcome of this research will be simplified design methods for calculating the fire resistance of a wide range of engineered timber floor systems.

Online Access: Free

Resource Link

<http://hdl.handle.net/10092/7354> ↗

